



Interface Control Document

V2.2

Prepared For

New Hampshire Department of Transportation
Bureau of Turnpikes
Contract # 2010-007
Hampton Open Road Tolling System

By

TELVENT
Caseta

67 S. Bedford Street, Suite 400W
Burlington, MA 01803
Phone 781-229-5850
Fax 781-359-1888

September 2010

© 2009 TELVENT CASETA Technologies, Inc. (TELVENT CASETA). All rights reserved.
Printed in the United States of America, 2009.

This document is licensed by TELVENT CASETA to the user for internal use only and is protected by copyright. The user is authorized to download and print a copy of this document if the user has purchased one or more of the TELVENT CASETA products described herein. All copies of this document shall include the copyright notice contained herein. No part of this document may be incorporated into user's documentation without prior written approval of:

Telvent Caseta
211 E. 7th Street, Suite 800
Austin, TX 78701

Phone: (512) 450-6300
Fax: (512) 450-6307

Web address: <http://www.caseta.com>
Email address: info@caseta.com

Date	Version	Description	Author
10/01/2009	1.0	Initial Version	Balaji Calluru
10/07/2009	1.0	Submitted to NHDOT	Paul Muzzey
10/23/2009	1.1	Incorporated the changes suggested during the meeting with TRMI and ACS	Balaji Calluru
11/03/2009	1.2	Incorporated NHDOT comments	Paul Muzzey
11/09/2009	1.3	Added more changes from the comments. Modified the pictures to show the correct interfaces	Balaji Calluru
11/10/2009	1.4	Incorporated changes suggested during the meeting on 11/10/2009	Balaji Calluru
11/19/2009	2.0	The tag file names are modified to reflect as per existing TRMI-ACS ICD. The violation images transmission frequency/method is updated.	Balaji Calluru
12/03/2009	2.0	Minor edits/ network topology updates	Paul Muzzey
04/22/2010	2.1	Added final network topology diagram Edited AVI_VALIDATION_STATUS field in XOTX file to define status 3 = Invalid and status 4 = Lost/stolen Changed document version number and cover page date	Paul Muzzey
09/08/2010	2.2	Final Version prepared for signature	Paul Muzzey

Table 1: Record of Changes

Table of Contents

1. Introduction.....	1
1.1. Acronyms.....	1
1.2. Host-TRMI Interface.....	1
1.3. Host-ACS Interface	2
1.4. File Exchange Process	3
1.5. File Exchange Frequency	4
1.6. Network Topology.....	4
2. File Formats	4
2.1. Transaction File Format	5
Transaction File	5
Transaction File Check File	10
Transaction File ACK File.....	10
2.2. Retransmit File Format.....	11
2.3. Tag File Format.....	11
Tag Status File	11
Tag Status Check File	13
Tag Status ACK File	13
2.4. VES File Format	14

1. Introduction

This document is the Interface Control Document (ICD) that defines the interfaces between the NHDOT ORT Host System, TRMI and ACS.

1.1. Acronyms

The following is a list of acronyms and their meanings. These acronyms appear at various places in the document:

Acronyms	Definition
ACS	Affiliated Computer Services
AVI	Automatic Vehicle Identification
AVC	Automatic Vehicle Classification
ETC	Electronic Toll Collection
FTP	File Transfer Protocol
GZIP	GNU Zip
IAG	Interagency Group (E-ZPass)
ICD	Interface Control Document
ICS	Image Capture Station
NHDOT	New Hampshire Department of Transportation
JOM	John O Morton Building
JPEG	Joint Photographic Experts Group
OCR	Optical Character Recognition
ORT	Open Road Tolling
TRMI	The Revenue Markets Incorporated
VES	Violation Enforcement System
VPC	Violation Processing Center

Figure 1: Table of Acronyms

1.2. Host-TRMI Interface

The following interfaces are defined in this document:

- Transaction (XOTX) Interface for sending customer toll transactions to TRMI
- Retransmit (XOTX_RET) Interface for resending the XOTX file to TRMI

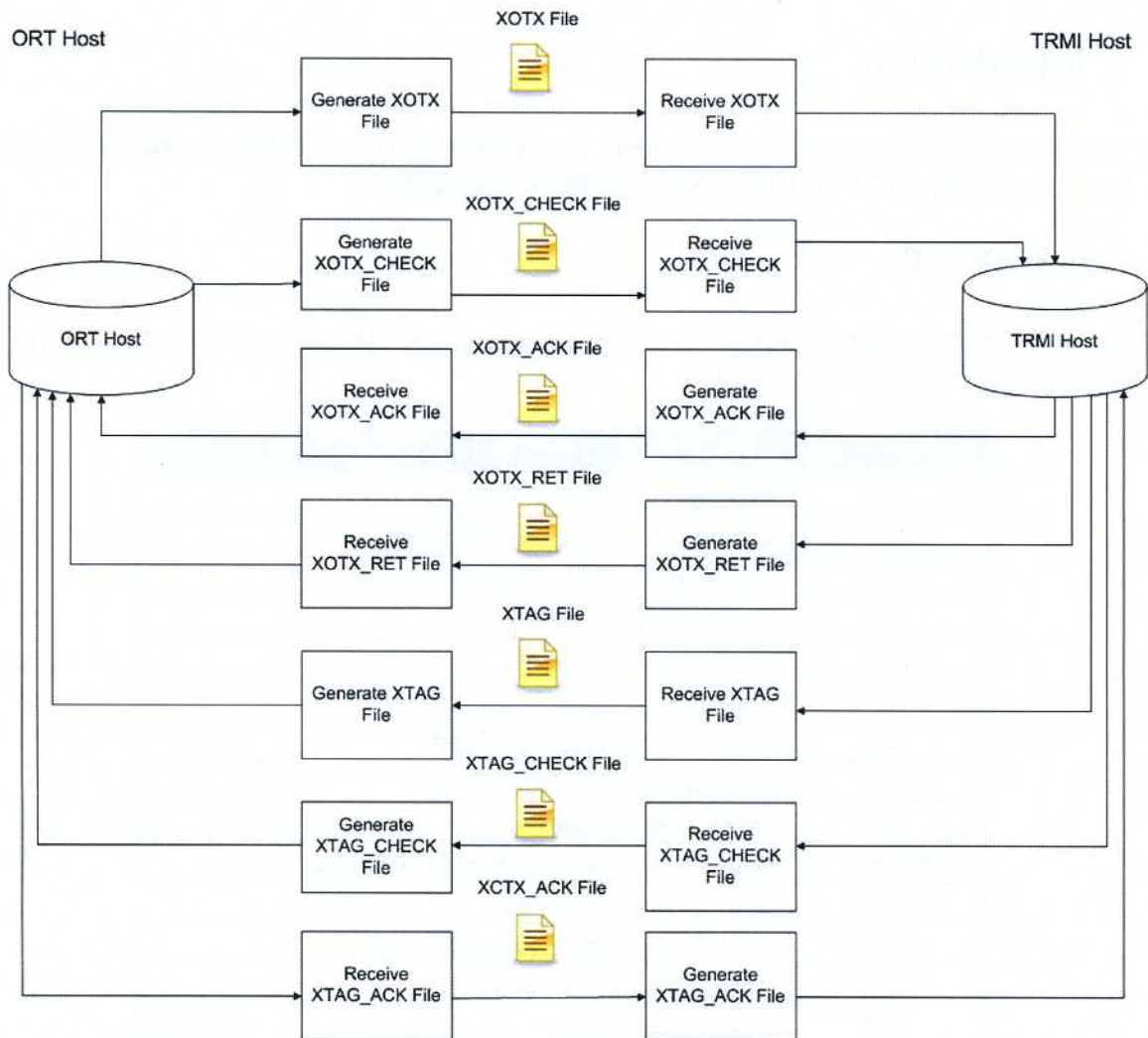


Figure 1: ORT TRMI Interface

1.3. Host-ACS Interface

The following interfaces are defined in this document:

- Tag Status (XTAG) Interface for identifying AVI tag customers
- Violation Enforcement System (VES) Interface for sending images of the violators to ACS

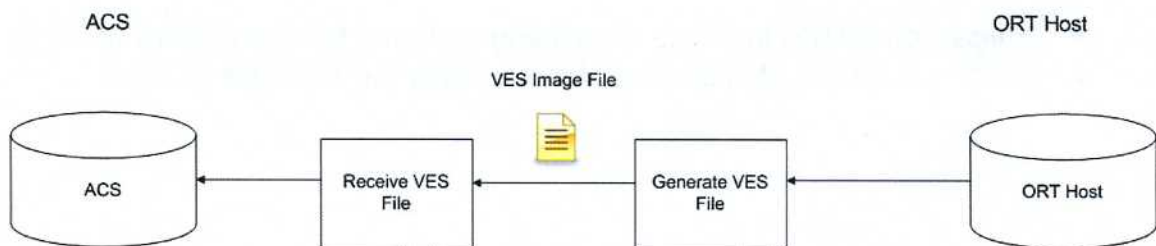


Figure 2: ORT ACS Interface

1.4. File Exchange Process

All file transfers will be through FTP protocol to designated servers. Each system should be capable of transmitting the same file to multiple servers at each site. This allows redundant servers to process the same data.

The Telvent Caseta FTP Server will maintain the generic folder structure identified below for every type of file being exchanged. If an external process picks up a file from this folder structure it is that process's responsibility to move the file to the archive folder after picking up the file.

- top-level
- top-level/sending
- top-level/archive

All files are processed from the top-level folder for that file type. The sender will transmit the file to the sending folder to prevent the receiver from processing the file before transmission is completed. When the file has been successfully transmitted, the sender will move the file from the sending folder to the top level folder.

The receiver will process each file in the order received. Once processing is completed, the file will be moved to the archive folder. If a transaction file is received out of sequence then a return file will be sent with the missing sequence number.

File Type Label	Folder Type	FTP Path
X	Top-level	/receive/ XOTX
X	Sending	/receive/ XOTX/sending
X	Archive	/receive/ XOTX/archive
R	Top-level	/receive/ XOTX_RET
R	Sending	/receive/ XOTX_RET/sending
R	Archive	/receive/ XOTX_RET/archive
C	Top-level	/receive/ XTAG
C	Sending	/receive/ XTAG/sending
C	Archive	/receive/ XTAG/archive
V	Top-level	/receive/VES
V	Sending	/receive/VES/sending
V	Archive	/receive/VES/archive

Table 1: FTP Server Paths

1.5. File Exchange Frequency

Full XTAG files will be transmitted by TRMI to the ORT Host System every time they receive a file from ACS. Normally there will be one file per day, but if multiple files are transmitted in a single day they will be processed. The contents of each full XTAG file should replace all tag account status records on the host.

Transaction (XOTX) files will be sent at frequencies determined by the traffic volumes at the NHDOT ORT lanes. The transactions files will be generated every hour if the transactions are available. Transactions from all the lanes will be combined into one file.

Violation images will be uploaded to ACS in JPEG format as individual files. VES image files will be sent to ACS in near real time.

1.6. Network Topology

Below diagram shows the additional network routes to the new ORT system. The FTP Server setup at Hampton and JOM locations will serve as the drop boxes for the respective locations. Files older than 7 days will be purged from this server.

See the Network Topology Diagram in Attachment A.

2. File Formats

All transfer files follow similar file naming conventions. These may be adjusted to meet specific customer requirements.

LabelAuthority_YYYYMMDDHHMISS.ext

Label = File Type Label (See below table for complete list)

Authority = Authority ID (26)

YYYY = Year

MM = Month

DD = Day

HH = Hour

MI = Minute

SS = Second

Ext = File Extension (See below table for complete list)

Example:

C26_20091001123456.XTAG

All times are in the Eastern Time Zone.

The following file types should be supported:

Name	Description	Label	Extension
Transaction File	A file containing transaction to upload to TRMI	X	XOTX
Transaction File Check File	Check file containing the full file name of the transaction file	X	XOTX_CHECK
Transaction File Acknowledgement File	A transaction file acknowledgement file will be generated by TRMI to send to ORT Host system	X	XOTX_ACK
Regenerate Transaction File	This file will contain the sequence number of the TRX file that needs to be regenerated	R	XOTX_RET
Tag Status File	A list of customer tag account statuses that are supported by ACS	C	XTAG (see NOTE)
Tag Status Check File	Check file containing the full file name of the tag status file	C	CHECK
Tag Status Acknowledgement File	A tag status acknowledgement file is sent to ACS after the tag status file processing is complete	C	ACK
Violation Image File	Violation images are uploaded in the JPEG format. The image file names are specified in section 2.4	V	JPG

Table 2: File Types

NOTE: Tag Status files are transmitted in GZIP compressed format with XTAG.ZIP as the file extension of the compressed file.

2.1. Transaction File Format

Transaction File

The ORT Host system will create one transaction file every hour. The file will contain all transactions generated since the last time the transaction file was created. This file will be uploaded to the TCS Host System.

Transaction (XOTX) File – Header Structure		
Field Name	Type/Size	Description/Valid Values
FILE_TYPE	CHAR(4)	XOTX
FROM_AGENCY_ID	CHAR(3)	T26
TO_AGENCY_ID	CHAR(3)	X26 = All Transactions
FILE_DATE	CHAR(8)	Date file created. Format: YYYYMMDD

FILE_TIME	CHAR(6)	Time file created: Format: HHMMSS
RECORD_COUNT	CHAR(8)	Count of all tags in file. Does not include header record. Values: 00000000 – 99999999
XOTX_FILE_NUM	CHAR(6)	For files sent to TRMI = A number used to identify the XOTX file to TRMI that is sequential across all transactions when received by TRMI. Values 000001 – 999999. Rolls over to zero and continues when fully used.
DELIMITER	CHAR(1)	LF
Header Total	39	
Transaction (XOTX) File – Detail Structure		
Field Name	Type/Size	Description/Valid Values
ETC_TRX_SERIAL_NUM	CHAR(12)	Unique fully sequential transaction identifier assigned across all normal toll, Type 2 violation, and Type 1 violation transaction records by the ORT Host. Values: 000000000001-999999999999 which roll over to one and continue when fully used
ETC_REVENUE_DATE	CHAR(8)	The revenue date of the transaction as determined by the ORT Host. Format: YYYYMMDD. Revenue date is calculated from 23:45 to 23:45.
ETC_FAC_AGENCY	CHAR(3)	T26
ETC_TRX_TYPE	CHAR(1)	B
AVI_TAG_AGENCY	CHAR(3)	From AVI or *** for untagged violation
AVI_TAG_SERIAL_NUMBER	CHAR(8)	From AVI or ***** for untagged violation
AVI_READ_PERFORMANCE	CHAR(2)	The total number of times the AVI tag was read while in the capture zone as obtained from the AVI reader. Values: 00 – 99 or ** for untagged violation or if data is not available
AVI_WRITE_PERF	CHAR(2)	The total number of times the AVI tag was written to while in the capture zone as obtained from the AVI reader. Values: 00 – 99 or ** for untagged violation or if data is not available
AVI_TAG_PGM_STATUS	CHAR(1)	The result of the AVI tag program cycle. Obtained from the AVI reader. Values: S = Success U = Unverified

		F = Failed * = untagged violation or data is not available
ETC_LANE_MODE	CHAR(1)	The mode the lane was operating in at the time of the transaction. Values: E = ETC Only (Dedicated) M = Manned/ETC O = ORT
AVI_VALIDATION_STATUS	CHAR(1)	1 = Valid (report use to TRMI) 2 = Low Balance (report use to TRMI) 3 = Invalid (report use to TRMI)(Type 1 Violation) 4 = Lost/stolen (report use to TRMI)(Type 1 Violation) 5 = NH non-revenue (the ORT System does not report use or Type 2 violations to either the ACS or the VPC)
VES_CONFIDENCE	CHAR(2)	For an untagged violation when lane is in ETC-only or ORT mode: Overall OCR confidence level of ETC_LIC_NUMBER field. Values 00 to 99 Otherwise: **
VES_LIC_PLATE	CHAR(10)	For an untagged violation when lane is in ETC-only or ORT mode: License plate characters from OCR. "**", a blank space, or no character <u>may</u> be inserted wherever a license plate character is unavailable or OCR for that character is below the confidence level threshold. Otherwise: *****
IAG_CLASS_READ	CHAR(4)	IAG class read from AVI tag when lane is in ETC-only or Manned/ETC mode. **** for untagged violation when lane is operating in ETC-only mode. Values: 0000 – 2047 and ****
AVC_ACTUAL_AXLES	CHAR(2)	Values: 00 to 96 = AVC axle count 97 = possible AVI failure 98 = reserved for future use 99 = possible AVC failure
ETC_EXIT_SPEED	CHAR(3)	The speed in MPH of the vehicle as it exited the facility. Values: 000 – 999

ETC_OVER_SPEED	CHAR(1)	Y = Speed is over threshold while lane is in ORT mode (Type 2 violation) N = Speed is at or under threshold while lane is in ORT mode (transaction without speed violation) * = possible speed detect failure
ETC_EXIT_PLAZA	CHAR(3)	001 = Hooksett Main 003 = Rochester 004 = Dover 005 = Hampton Main 006 = Hampton Ramp 007 = Hooksett Ramp 008 = Bedford Toll 009 = Exit 11 011 = Exit 10 012 = Bedford Road
ETC_EXIT_LANE	CHAR(3)	ORT Lane numbers in the form DNN, where D is the direction (1 to 4, where 1=N, 2=S, 3=E, 4=W) and NN is the 2 digit lane number. The ORT lanes will be numbered from 50 to 69. Refer to the Lane List table for Hampton Main ORT Lane numbers. The transactions from the shoulder lanes will be combined into the adjacent travel lane.
ETC_EXIT_DATE	CHAR(8)	The date of the transaction as determined by the ORT Host, indicating the date when the vehicle left the lane. Format: YYYYMMDD
ETC_EXIT_TIME	CHAR(6)	The time of the transaction as determined by the ORT Host, indicating the time when the vehicle left the lane. Format: HHMMSS
ETC_EXIT_MICROSECOND	CHAR(6)	Transaction Microsecond. In the ORT Host system the transaction can be uniquely identified using ETC_EXIT_PLAZA, ETC_EXIT_LANE, ETC_EXIT_DATE, ETC_EXIT_TIME and ETC_EXIT_MICROSECOND.
ETC_DEBIT_CREDIT	CHAR(1)	+
AVI_NHDOT_CLASS	CHAR(2)	Value: 01 to 12 for the standard NHDOT classes (IAG class read from AVI tag converted to NHDOT class) or **

		where AVI is not available
AVI_NHDOT_FARE	CHAR(5)	Value: 00000 (\$000.00) to 99999 (\$999.99) for 1 of the 12 standard E-ZPass fare due as mapped from AVI_NHDOT_CLASS or ***** where AVI is not available.
AVC_NHDOT_CLASS	CHAR(2)	Value: 01 to 12 for standard NHDOT classes (corresponding fare value for measured axle count and dual tire indications) or ** where AVC is not available
AVC_NHDOT_FARE	CHAR(5)	Value: 00000 (\$000.00) to 99999 (\$999.99) for the E-ZPass fare due as calculated from AVC (with dual tires and extra axles factored in) or ***** where AVC is not available
VIOLATION_TYPE	CHAR(1)	0 = Normal Transaction 1 = Type 1 Violation 2 = Type 2 Violation
TKT_NUM	CHAR(11)	Unique (non-sequential) violation image identifier Values:000000000000-999999999999. The first two characters are plaza (01 to 12), the next two characters are lane (50 to 69), the next character is direction (1 to 4, where 1=N, 2=S, 3=E, 4=W), and the six least significant characters are sequential, roll over to one, and continue when fully used ***** for normal and Type 2 violation transaction records
DELIMITER	CHAR(1)	LF
Record Total	118	

Plaza ID	Traffic Direction	Lane Number	Description
5	North	59	North Bound Left Shoulder
5	North	58	North Bound Lane (Left)
5	North	57	North Bound Lane (Right)
5	North	56	North Bound Lane (Future)
5	North	50	North Bound Right Shoulder
5	South	69	South Bound Left Shoulder
5	South	68	South Bound Lane (Left)
5	South	67	South Bound Lane (Right)

5	South	66	South Bound Lane (Future)
5	South	60	South Bound Right Shoulder

Table 3: Lane Number List

Transaction File Check File

A transaction check file is created by the ORT Host system for every transaction file. The ORT Host system will upload the check file immediately after uploading the transaction file.

Field Name	Type/Size	Description/Valid Values
XOTX_FILE_NAME	CHAR(50)	The exact character sequence from the name of the XOTX file.
XOTX_CHECKSUM_VALUE	CHAR(32)	Checksum value of the XOTX file as calculated using the md5sum algorithm.
DELIMITER	CHAR(1)	LF
Total	83	

Transaction File ACK File

The ORT Host System expects an acknowledgement file from the TCS Host System. The structure of the acknowledgement file is as below.

Transaction Ack (XOTX_ACK) File – Header Structure		
Field Name	Type/Size	Description/Valid Values
FILE_TYPE	CHAR(3)	ACK
FROM_AGENCY_ID	CHAR(3)	C26
TO_AGENCY_ID	CHAR(3)	T26
ORIG_FILE_NAME	CHAR(50)	The exact character sequence from the name of the XOTX file received by TRMI from the ORT toll system.
FILE_DATE	CHAR(8)	Date TRMI creates the ACK file. Format: YYYYMMDD
FILE_TIME	CHAR(6)	Time TRMI creates the ACK file. Format: HHMMSS
RETURN_CODE	CHAR(2)	A code indicating the status of the XOTX files being acknowledged. Values: 00 – File successfully received and verified. 01 – File Error; Unable to process the file, file not processed 02 – Detail record(s) have invalid data,

		these records are not processed 05 – Duplicate file sequence number, file not processed 06 – Gap in sequence number, file processed
DELIMITER	CHAR(1)	LF
Total	76	
Transaction Ack (XOTX_ACK) File – Detail Structure		
Field Name	Type/Size	Description/Valid Values
XOTX_FILE_NUM	CHAR(6)	XOTX_FILE_NUM from the original Transaction XOTX file.
ETC_TRX_SERIAL_NUM	CHAR(12)	ETC_TRX_SERIAL_NUM from the original Transaction XOTX file for every transaction that failed to load into TRMI database.
DELIMITER	CHAR(1)	LF
Total	19	

2.2. Retransmit File Format

The TCS Host System can request regeneration of a transaction file by uploading the retransmit file. The retransmit file will have a list of file IDs that need to be retransmitted.

Field Name	Type/Size	Description/Valid Values
XOTX_FILE_NUM	CHAR(6)	Transaction File ID
DELIMITER	CHAR(1)	LF
Total	7	

2.3. Tag File Format

Tag Status File

TRMI will forward every tag status file that it receives to the ORT Host system. The tag status file is normally expected around 3AM. In most cases, the download should arrive at the ORT Host within 36 hours of the prior download. The tag status file is a simple ASCII file. The ORT Host system will perform the sanity checks, load it into the database and download the tag file to the ORT zone controllers.

The file naming convention is defined as:

Uncompressed naming convention: C26_{FILE_NAME}.XTAG
 Uncompressed naming formats: C26_YYYYMMDDHHMMSS.XTAG
 Uncompressed naming example: C26_20100601033000.XTAG

Tag Status (XTAG) File – Header Structure		
Field Name	Type/Size	Description/Valid Values
FILE_TYPE	CHAR(4)	XTAG
FROM_AGENCY_ID	CHAR(3)	C26
FILE_DATE	CHAR(8)	Date file created. Format: YYYYMMDD
FILE_TIME	CHAR(6)	Time file created: Format: HHMMSS
RECORD_COUNT	CHAR(8)	Count of all tags in file. Does not include header record. Values: 00000000 – 99999999
COUNT_STAT1	CHAR(8)	Count of all tags with status code 1. Values: 00000000 – 99999999
COUNT_STAT2	CHAR(8)	Count of all tags with status code 2. Values: 00000000 – 99999999
COUNT_STAT3	CHAR(8)	Count of all tags with status code 3. Values: 00000000 – 99999999
COUNT_STAT4	CHAR(8)	Count of all tags with status code 4. Values: 00000000 – 99999999
COUNT_STAT5	CHAR(8)	Count of all tags with status code 5. Values: 00000000 – 99999999
DELIMITER	CHAR(1)	LF
Header Total	70	
Tag Status (XTAG) File - Detail Structure		
Field Name	Type/Size	Description/Valid Values
TAG_AGENCY_ID	CHAR(3)	Tag agency ID. Values: 000 – 127
TAG_SERIAL_NUMBER	CHAR(8)	Tag serial number. Values: 00000001 – 16777215
TAG_STATUS	CHAR(1)	1 = Valid (report use to TRMI) 2 = Low Balance (report use to TRMI) 3 or 4 = Invalid or lost/stolen (report use to TRMI)(Type 1 Violation) 5 = NH non-revenue (report use to TRMI)
TAG_ACCOUNT_INFO	CHAR(6)	Hard coded to 000000
DELIMITER	CHAR(1)	LF
Record Total	19	

The header section will appear once for the entire file. The Detail Structure will be repeated for every tag. The tag file will be compressed before transmission.

The file naming convention is defined as:

Compressed naming convention: C26_{FILE_NAME}_{FILE_TYPE}.ZIP

Compressed naming formats:
Compressed naming example:

C26_YYYYMMDDHHMMSS_XTAG.ZIP
C26_20100601033000_XTAG.ZIP

Tag Status Check File

TRMI will be sending a check file for every tag status file. The check file will have one entry of the tag status file name. This file receipt will trigger the tag file loading process in the ORT Host system. TRMI should download the tag status file first and then download the check file. The check file is not compressed.

The file naming convention is defined as:

Naming convention: C26_{FILE_NAME}_{FILE_TYPE}.CHECK
Naming formats: C26_YYYYMMDDHHMMSS_XTAG.CHECK
Naming example: C26_20100601033000_XTAG.CHECK

Field Name	Type/Size	Description/Valid Values
ORIG_FILE_NAME_TYPE	CHAR(80)	The exact character sequence from the name of the XTAG file sent by TRMI to the ORT toll system.
Total	80	

Tag Status ACK File

The ORT Host system will upload the tag status acknowledgement file to TRMI after processing the tag status file. The ACK file is not compressed.

The file naming convention is defined as:

Naming convention: T26_{FILE_NAME}_{FILE_TYPE}.ACK
Naming formats: T26_YYYYMMDDHHMMSS_XTAG.ACK
Naming example: T26_20100601033000_XTAG.ACK

Field Name	Type/Size	Description/Valid Values
FILE_TYPE	CHAR(4)	ACK
FROM_AGENCY_ID	CHAR(3)	C26
TO_AGENCY_ID	CHAR(3)	T26
ORIG_FILE_NAME_TYPE	CHAR(50)	The exact character sequence from the name of the XTAG file sent by TRMI to the ORT toll system. Format: C26_{FILE_NAME}.XTAG
FILE_DATE	CHAR(8)	Date the toll collection system created the ACK file. Format: YYYYMMDD
FILE_TIME	CHAR(6)	Time the toll collection system created the

		ACK file. Associated tag status is sent to the lanes after this time. Format: HHMMSS
RETURN_CODE	CHAR(2)	A code indicating the status of the XTAG files being acknowledged. Values: 00 – File was successfully received and verified 01 – Header record found with data preventing file's use. 02 – Detail record(s) found with data preventing file's use. 07 – General file structure defect preventing file's use.
DELIMITER	CHAR(1)	LF
Total	77	

2.4. VES File Format

The ICS system will capture the images and store them in the JPEG format. The ORT Host System will assign a unique 11 character TKT_NUM for every Type 1 Violation Transaction. The VES server will collect the images from the ICS system and assign the ORT Host System TKT_NUM to each image. The VES server will rename the image files in the below format before transmission.

PPLDNNNNNN_Camera.jpg

Where:

PP – 2 Digit Plaza ID

LL – 2 Digit Lane Number

D – Traffic Direction. 1 for North, 2 for South, 3 for East and 4 for West

NNNNNN – 6 digit sequence number, starts with 1, rolls over when fully used.

Camera – FRONT for front camera and REAR for rear camera

Example:

05581014562_REAR.jpg

VES Server will upload the violation images captured to the Telvent Caseta FTP Server in near real time. The Telvent Caseta FTP Server will upload the violation images to the ACS VES server using FTP protocol in near real time. The Telvent Caseta FTP Server will purge the images immediately.

SIGNATURE PAGE

By NHDOT:


Signature

John Curran Jr
Name

Assistant Administrator - Project Manager
Title

9/21/10
Date

By Telvent Caseta:


Signature

PAUL MUZZEY
Name

PROJECT MANAGER
Title

9/8/10
Date

SIGNATURE PAGE (Continued)

By TRMI:



Signature

JOSEPH KUPIEC
Name

SOFTWARE DEV. MGR.
Title

12/1/2010
Date

By ACS:


Signature

GEORGE KARABIN
Name

REGIONAL DIRECTOR - PROGRAM MANAGER
Title

10/29/10
Date

Attachment A

Network Topology Diagram

<div> <div>8</div> <div>7</div> <div>6</div> <div>5</div> <div>4</div> <div>3</div> <div>2</div> <div>1</div> </div> <div> <div> <div>NOTES:</div> <div> <div>1</div> <div>TRANSACTION FILES FROM TELVENT CASETA HOST APPLICATION UPLOADED TO COMMUNICATIONS SERVER ON THE TCS LAN AT THE JOHN O. MORTON BUILDING.</div> </div> <div> <div>2</div> <div>TAG FILES FROM TCS SERVERS DOWNLOADED TO FTP SERVER ON THE E-PASS ORT LANS AT THE JOHN O. MORTON BUILDING AND HAMPTON. SEE INTERFACE CONTROL DOCUMENT FOR SPECIFIC DETAILS REGARDING TIMING, SYNCHRONIZATION AND FILE TRANSMISSION.</div> </div> <div> <div>3</div> <div>ACCESS TO ROMS APPLICATION SERVER AND DVR SERVERS ON THE HAMPTON MAIN ORT LAN REQUIRED FROM WORKSTATIONS ON OTHER LANS.</div> </div> <div> <div>4</div> <div>WORKSTATIONS ON THE HAMPTON MAIN ADMIN LAN REQUIRE ACCESS TO THE TELVENT CASETA ROMS APPLICATION.</div> </div> <div> <div>5</div> <div>IP ADDRESS OF TELVENT INTERNET ROUTER (IN AUSTIN, TX AND/OR LONG ISLAND CITY, NY) TO BE IDENTIFIED.</div> </div> <div> <div>6</div> <div>REMOTE SUPPORT STAFF HAVE IP ADDRESSES ASSIGNED BY ISP USING DHCP FOR SMART PHONES AND LAPTOPS THAT ARE NOT INSIDE THE TELVENT FIREWALLS.</div> </div> <div> <div>7</div> <div>VIOLATION IMAGES FROM THE TELVENT CASETA VES SERVER UPLOADED TO */proc_batch/home/Images/NH* FOLDER ON THE ACS FTP.</div> </div> <div> <div>8</div> <div>ALL DEVICES WILL SYNCHRONIZE TIME WITH 172.20.176.25 and 172.19.175.25 WHICH IN TURN SYNCHRONIZE WITH AN NTP SERVER PROVIDED BY NHDOT. THE IP ADDRESS OF THE NTP SERVER IS TO BE IDENTIFIED.</div> </div> </div> </div>	<div> <div>8</div> <div>7</div> <div>6</div> <div>5</div> <div>4</div> <div>3</div> <div>2</div> <div>1</div> </div> <div> <div> <div>REV</div> <div>DESCRIPTION</div> <div>DATE</div> <div>APPROVED</div> </div> <div> <div>B</div> <div>UPDATED ROUTER MODELS, CORRECTED IP ADDRESS DATA</div> <div>4/22/2010</div> <div>FDM</div> </div> <div> <div>C</div> <div>UPDATED IP ADDRESS DATA TO AS-BUILT STATUS</div> <div>9/10/2010</div> <div>FDM</div> </div> </div>
---	--

NOTES:

- 1
- TRANSACTION FILES FROM TELVENT CASETA HOST APPLICATION UPLOADED TO COMMUNICATIONS SERVER ON THE TCS LAN AT THE JOHN O. MORTON BUILDING.
- 2
- TAG FILES FROM TCS SERVERS DOWNLOADED TO FTP SERVER ON THE E-PASS ORT LANS AT THE JOHN O. MORTON BUILDING AND HAMPTON. SEE INTERFACE CONTROL DOCUMENT FOR SPECIFIC DETAILS REGARDING TIMING, SYNCHRONIZATION AND FILE TRANSMISSION.
- 3
- ACCESS TO ROMS APPLICATION SERVER AND DVR SERVERS ON THE HAMPTON MAIN ORT LAN REQUIRED FROM WORKSTATIONS ON OTHER LANS.
- 4
- WORKSTATIONS ON THE HAMPTON MAIN ADMIN LAN REQUIRE ACCESS TO THE TELVENT CASETA ROMS APPLICATION.
- 5
- IP ADDRESS OF TELVENT INTERNET ROUTER (IN AUSTIN, TX AND/OR LONG ISLAND CITY, NY) TO BE IDENTIFIED.
- 6
- REMOTE SUPPORT STAFF HAVE IP ADDRESSES ASSIGNED BY ISP USING DHCP FOR SMART PHONES AND LAPTOPS THAT ARE NOT INSIDE THE TELVENT FIREWALLS.
- 7
- VIOLATION IMAGES FROM THE TELVENT CASETA VES SERVER UPLOADED TO */proc_batch/home/Images/NH* FOLDER ON THE ACS FTP.
- 8
- ALL DEVICES WILL SYNCHRONIZE TIME WITH 172.20.176.25 and 172.19.175.25 WHICH IN TURN SYNCHRONIZE WITH AN NTP SERVER PROVIDED BY NHDOT. THE IP ADDRESS OF THE NTP SERVER IS TO BE IDENTIFIED.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
3 DECIMAL PLACES ±.0009
2 DECIMAL PLACES ±.01
1 DECIMAL PLACE ±.04
ANGLES
FRACTIONS
1/16

DO NOT SCALE DRAWING

MATERIAL

FINISH

THIS DOCUMENT IS RELEASED FOR
USE IN THE CONSTRUCTION OF
CONSTRUCTION BIDDING OR PERMIT
PURPOSES

APPROVALS

DATE

2/28/2010

2/28/2010

3/1/2010

3/2/2010

3/2/2010

DRAWN

A. TATE

CHECKED

H. BHAGAWATULA

ENGINEER

A. TATE

PROJECT MANAGER

P. MAJZEY

RELEASE

S. HOOTON

TELVENT

Caseta

211 EAST 7TH ST
SUITE 800
AUSTIN, TX 78701

TITLE

NETWORK DIAGRAM

SIZE

D

FSCM NO

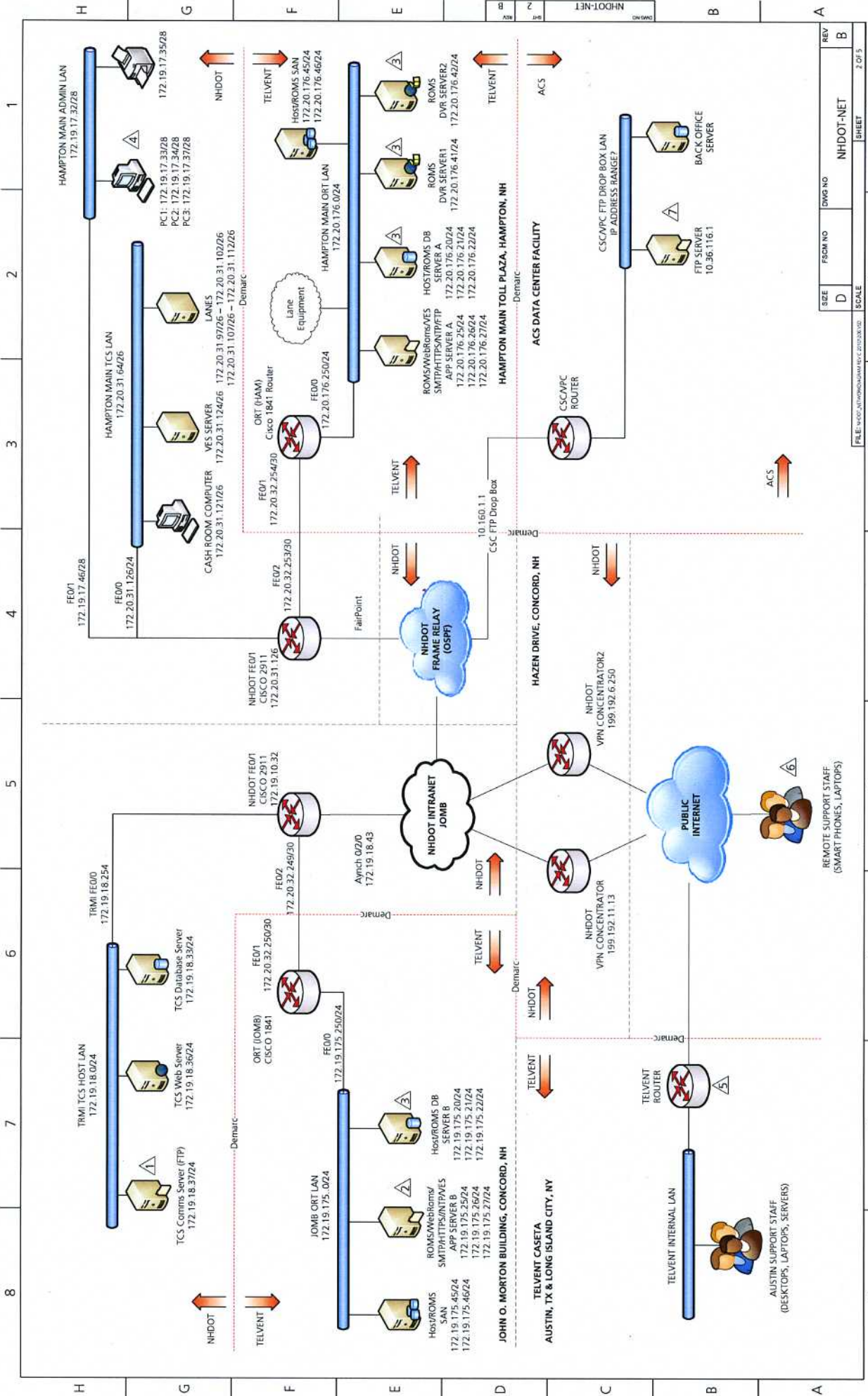
DWG NO

REV

NHDOT-NET

SCALE

1 OF 5



REV	DATE	DESCRIPTION
B		
A		

SIZE	FROM NO	DWG NO	SHEET
D			2 OF 5

SCALE	FILE: \\HDC\NETWORK\LAN\REV_20120810.DWG